10/537,484

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     (FILE 'HOME' ENTERED AT 19:39:25 ON 06 DEC 2006)

     FILE 'REGISTRY' ENTERED AT 19:40:18 ON 06 DEC 2006
L1              STRUCTURE UPLOADED

=> d l1
L1 HAS NO ANSWERS
L1              STR
Structure diagram not available for display


Structure attributes must be viewed using STN Express query preparation.


=> s l1
SAMPLE SEARCH INITIATED 19:40:45 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED -     5523 TO ITERATE

 36.2% PROCESSED     2000 ITERATIONS                                 2 ANSWERS
INCOMPLETE SEARCH (SYSTEM LIMIT EXCEEDED)
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS:  ONLINE  **COMPLETE**
                        BATCH   **COMPLETE**
PROJECTED ITERATIONS:       106004 TO   114916
PROJECTED ANSWERS:               2 TO      251

L2            2 SEA SSS SAM L1

=> s l1 full
FULL SEARCH INITIATED 19:40:51 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED -   110907 TO ITERATE

100.0% PROCESSED   110907 ITERATIONS                               93 ANSWERS
SEARCH TIME: 00.00.01

L3            93 SEA SSS FUL L1

=> fil caplus
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                   166.94     167.36

FILE 'CAPLUS' ENTERED AT 19:40:58 ON 06 DEC 2006
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FILE LAST UPDATED: 5 Dec 2006  (20061205/ED)
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=> s l3
L4          651 L3

=> s l4 and py<2003
      22829921 PY<2003
L5          565 L4 AND PY<2003

=> s l5 and CVD
          69427 CVD
L6           23 L5 AND CVD

=> d 1-23 bib abs
```

L6 ANSWER 1 OF 23 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:748153 CAPLUS
DN 137:271609
TI Fabrication of semiconductor device
IN Shimamoto, Yasuhiro; Hiratani, Masahiko; Matsui, Yuichi; Ubutame, Toshihide
PA Hitachi Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 19 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	JP 2002285333	A2	20021003	JP 2001-86930	20010326	<--
	TW 557501	B	20031011	TW 2002-91104128	20020306	
	US 2002192899	A1	20021219	US 2002-101600	20020321	<--
	US 6743739	B2	20040601			
	US 2004171210	A1	20040902	US 2004-795430	20040309	
	US 6992022	B2	20060131			
PRAI	JP 2001-86930	A	20010326			
	US 2002-101600	A1	20020321			

AB A method for fabricating a semiconductor device by CVD of a ruthenium film on a substrate having a recess involves using a source material of an organo-ruthenium compound, an oxidizing gas such as O2, N2O, NO, O3, or H2O , and an inert gas hardly adsorbed on the ruthenium surface to decrease the adsorption d. of the oxidizing gas on the ruthenium surface. Alternatively, a gas easily adsorbed on the ruthenium surface may be used to control the adsorption d. of the oxidizing gas on the ruthenium surface. Specifically, the inert gas may comprise Ar, Ne, He, Xe, N2, or CO2, and the easily adsorbed gas may comprise THF, CO, C2H4, or C2H2. Addnl., the CVD deposition may involve forming a seed layer of ruthenium, platinum, iridium, rhodium, osmium, palladium, cobalt, iron, or their alloys.

L6 ANSWER 2 OF 23 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:736847 CAPLUS
DN 137:256423
TI Methods of chemical vapor depositing ruthenium by varying chemical vapor deposition parameters in integrated-circuit fabrication
IN Won, Seok-jun; Yoo, Cha-young; Kim, Sung-tae; Park, Young-wook; Lee, Yun-jung; Park, Soon-yeon
PA Samsung Electronics Co., Ltd., S. Korea
SO U.S. Pat. Appl. Publ., 16 pp.
CODEN: USXXCO
DT Patent

LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002137335	A1	20020926	US 2002-80000	20020221 <--
	US 6680251	B2	20040120		
	KR 2002074922	A	20021004	KR 2001-15001	20010322 <--
PRAI	KR 2001-15001	A	20010322		

AB A CVD method for depositing Ru with good surface structure and step coverage is claimed. A layer is formed by chemical vapor depositing a seeding layer of Ru oxide on a substrate at a CVD flow rate ratio of a Ru source to O gas. A main layer of Ru is chemical vapor deposited on the seeding layer by increasing the CVD flow rate ratio of the Ru source to the O gas.

L6 ANSWER 3 OF 23 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:575707 CAPLUS
DN 137:133271
TI Fabricating method of semiconductor integrated circuits with ruthenium capacitor electrodes
IN Shimamoto, Yasuhiro; Hiratani, Masahiko; Matsui, Yuichi; Yamamoto, Satoshi; Nabatame, Toshihide; Ando, Toshio; Sakuma, Hiroshi; Iljima, Shinpei
PA Japan
SO U.S. Pat. Appl. Publ., 28 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

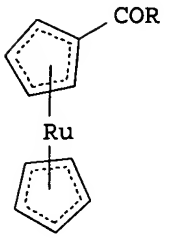
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002102826	A1	20020801	US 2001-20314	20011218 <--
	JP 2002231656	A2	20020816	JP 2001-24389	20010131 <--
PRAI	JP 2001-24389	A	20010131		

AB The present invention relates to a technol. effectively adaptable for fabricating process a semiconductor integrated circuit with a step of forming a ruthenium electrode of a capacitor with high-k material by a chemical vapor deposition (CVD) method using an organo-ruthenium (Ru) compound as a precursor. A Ru electrode with a low amount of O contamination and high thermal stability is formed by a CVD method. In the CVD method using an organo-ruthenium compound as a precursor, the introduction of an oxidation gas is limited to when the precursor is supplying, and the reaction is allowed to occur at a low O2 partial pressure. Consequently, it is possible to form a Ru film with a low amount of O contamination. Further, after formation of the Ru film, annealing at not less than the formation temperature is performed, thereby forming a Ru film with high thermal stability.

L6 ANSWER 4 OF 23 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:286707 CAPLUS
DN 136:310036
TI Preparation of ruthenium for chemical vapor deposition and ruthenium thin film or ruthenium compound thin film for chemical vapor deposition
IN Okamoto, Koji
PA Tanaka Noble Metal Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002114796	A2	20020416	JP 2000-310504	20001011 <--
PRAI	JP 2000-310504		20001011		

OS MARPAT 136:310036
GI



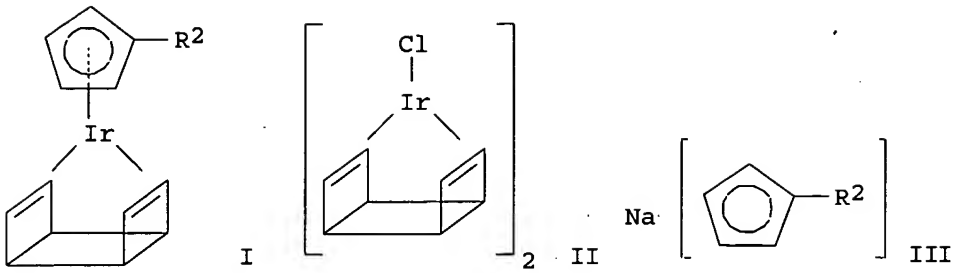
I

AB An acylcyclobutadienyl(cyclobutadienyl)ruthenium (acylruthenocene) compound (I; R = linear or branched hydrocarbyl) for chemical vapor deposition (CVD) is prepared This compound enables ruthenium thin film or ruthenium compound thin film to be fabricated even by precipitation at high temperature
250-450°. These thin films of ruthenium or its compound are superior in morphol. and step coverage and low in specific resistance and suitable for fabricating electrodes of various semiconductor devices, in particular DRAM (dynamic RAM). Thus, 12.3 g isobutyric anhydride and 2 mL 85% H_3PO_4 were added to 2.95 g ruthenocene and allowed to react with gradual heating for 10 min to give 1.8 g isobutyrylcyclopentadienyl(cyclobutadienyl)ruthenium (II) which decomposed at temperature higher than 286.1° in TG-DTA. Ruthenium thin film was deposited on a substrate by CVD at substrate temperature 350° and chamber pressure 140 Pa using II. The film exhibited good morphol. with 80% step coverage and specific resistance of 15 μΩ/cm.

L6 ANSWER 5 OF 23 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:284668 CAPLUS
DN 136:333780
TI Organometallic compound for chemical vapor deposition, manufacture of the compound, and chemical vapor deposition for forming noble metal (compound) thin film
IN Okamoto, Koji
PA Tanaka Noble Metal Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002114795	A2	20020416	JP 2000-310503	20001011 <--
	US 2002065427	A1	20020530	US 2001-960510	20010924 <--
	US 6420582	B2	20020716		
	CN 1357550	A	20020710	CN 2001-135444	20010928 <--
PRAI	JP 2000-310503	A	20001011		

GI



AB The organometallic compound is (a) n-butylcyclopentadienyl(cyclopentadienyl) ruthenium, isobutylcyclopentadienyl(cyclopentadienyl)ruthenium, or tert-butylcyclopentadienyl(cyclopentadienyl)ruthenium for forming a Ru (compound) thin film or (b) alkylcyclopentadienyl(1,5-cyclooctadiene)iridium I (R2 = Pr, iso-Pr, Bu, iso-Bu, tert-butyl) for forming a Ir (compound) thin film. The butylcyclopentadienyl(cyclopentadienyl)rutheniums are manufactured by reaction of bis(cyclopentadienyl)ruthenium and BuOH, iso-Bu alc., or tert-Bu alc. whereas I is manufactured by reaction of bis(1,5-cyclooctadiene chloroiridium) II and Na alkylcyclopentadienide III. The compound is vaporized, transported on a substrate, and thermally decomposed to form a CVD film. The compound may be thermally decomposed in the presence of O because of enhanced stability against O.

L6 ANSWER 6 OF 23 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2002:123563 CAPLUS
DN 136:176541
TI Manufacturing semiconductor device with adhesive layer in between rare metal layer and insulating layer
IN Lin, Jun; Minakata, Hiroshi; Shimada, Akihiro; Suzuki, Toshiya; Matsunaga, Daisuke
PA Fujitsu Limited, Japan
SO U.S. Pat. Appl. Publ., 22 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002019107	A1	20020214	US 2000-735477	20001214 <--
	US 6602756	B2	20030805		
	JP 2002057308	A2	20020222	JP 2000-243930	20000811 <--
	TW 241710	B1	20051011	TW 2000-89127235	20001219
	US 2003211699	A1	20031113	US 2003-457535	20030610
	US 6835976	B2	20041228		
PRAI	JP 2000-243930	A	20000811		
	US 2000-735477	A3	20001214		

AB A method of manufacturing a semiconductor device has the steps of: (a) forming a lower electrode made of rare metal above a semiconductor substrate; (b) depositing a capacitor dielec. film made of a high dielec. material or ferroelec. oxide on the lower electrode; (c) forming a laminated layer on the capacitor dielec. film, the laminated layer including an upper electrode layer made of rare metal and an adhesive layer with or without an SiO2 mask layer thoreon; (d) patterning the laminated layer; (e) chemical processing the patterned, laminated layer to remove a surface layer of the laminated layer; and (f) forming an interlayer insulating film over the semiconductor substrate, covering the chemical processed, laminated layer. An adhesion force between the rare metal layer and insulating layer can be increased.

L6 ANSWER 7 OF 23 CAPLUS COPYRIGHT 2006 ACS on STN

AN 2002:84582 CAPLUS
DN 136:142951
TI Method for fabricating an SrRuO3 film to control the delivery of source reagents into the reactor chamber
IN Marsh, Eugene P.
PA Micron Technology, Inc., USA
SO U.S., 8 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6342445	B1	20020129	US 2000-571718	20000515 <--
	US 2002061633	A1	20020523	US 2001-3261	20011206 <--
	US 6506666	B2	20030114		
	US 2003073294	A1	20030417	US 2002-303017	20021125
PRAI	US 2000-571718	A3	20000515		
	US 2001-3261	A1	20011206		

AB A method of fabricating an SrRuO3 thin film is disclosed. The method uses a multi-step deposition process for the sep. control of the Ru reagent, relative to the Sr reagent, which requires a much lower deposition temperature than the Sr reagent. A Ru reagent gas is supplied by a bubbler and deposited onto a substrate. Following the deposition of the Ru reagent, the Sr liquid reagent is vaporized and deposited onto the Ru layer.
RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 8 OF 23 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:876425 CAPLUS
DN 136:125714
TI Visible photoluminescence from ruthenium-doped multiwall carbon nanotubes
AU Dickey, Elizabeth C.; Grimes, Craig A.; Jain, Mahaveer K.; Ong, Keat G.; Qian, Dali; Kichambare, P. D.; Andrews, Rodney; Jacques, David
CS Department of Materials Science and Engineering, The Pennsylvania State University, University Park, PA, 16802, USA
SO Applied Physics Letters (2001), 79(24), 4022-4024
CODEN: APPLAB; ISSN: 0003-6951
PB American Institute of Physics
DT Journal
LA English
AB Visible photoluminescence at 515 nm of Ru-doped multiwall C nanotubes, fabricated on quartz substrates using a CVD technique, is reported. The well-aligned nanotubes serve as templates for the luminescent, residual Ru-Fe catalyst particles contained within the nanotubes, restricting the particle size to .apprx.10 nm. The synthesis technique can be readily extended to other luminescent dopants; also, since nanotube arrays can be readily grown from patterned substrates, nanotube-based optoelectronic devices may be achieved.
RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 9 OF 23 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:798694 CAPLUS
DN 135:350816
TI CVD process for forming a thin film
IN Kitada, Katsutsugu; Saito, Masayuki
PA Tanaka Kikinzoku Kogyo K.K., Japan
SO U.S. Pat. Appl. Publ., 15 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

PI	US 2001036509	A1	20011101	US 2001-817122	20010327 <--
	US 6884463	B2	20050426		
	JP 2001342566	A2	20011214	JP 2000-242108	20000810 <--
	CN 1410589	A	20030416	CN 2001-141183	20010928
	US 2005155552	A1	20050721	US 2005-75880	20050310
PRAI	JP 2000-96359	A	20000331		
	JP 2000-242108	A	20000810		
	US 2001-817122	A3	20010327		

AB The present invention is a CVD process for forming a thin film which includes a step of recovering an organometallic compound component from an exhaust gas which was conventionally discarded, and a purifying step of purifying the recovered organometallic compound to thereby eliminate a byproduct formed in a film forming step by CVD. According to this process, the organometallic compound is recycled. As a recovering technique, any of the following is employed: a technique in which the exhaust gas is cooled and is recovered as a recovered content; a technique in which the exhaust gas is brought into contact with a solvent to dissolve the organometallic compound in the solvent; and a technique in which the exhaust gas is brought into contact with an adsorbent to thereby adsorb the organometallic compound A purifying technique is selected depending on the recovering technique or the properties of the recovered content, and any of a technique of distilling the recovered content, a technique of sublimating the recovered content, and a technique of heating the adsorbent to desorb the organometallic compound is employed. These CVD thin film processes can recover and purify the organometallic compound in a higher yield by adding a step of eliminating oxygen from the exhaust gas prior to the recovering step.

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 10 OF 23 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:750505 CAPLUS
DN 135:333862
TI Spouted bed metallorganic chemical vapor deposition of ruthenium on NiCoCrAlYTa powders
AU Juarez, F.; Castillo, A.; Pieraggi, B.; Vahlas, C.
CS Centre Interuniversitaire de Recherche et d'Ingenierie des Materiaux, CNRS-INPT-UPS, Ecole Nationale Superieure des Ingenieurs en Arts Chimiques et Technologiques, Toulouse, 31077, Fr.
SO Journal de Physique IV: Proceedings (2001), 11(Pr3, Thirteenth European Conference on Chemical Vapor Deposition, 2001), Pr3/1117-Pr3/1123
CODEN: JPICEI; ISSN: 1155-4339
PB EDP Sciences
DT Journal
LA English
AB The spouted-bed metallorg. CVD of ruthenium on Ni-Co-Cr-Al-Y-Ta alloy com. powder was investigated. An economical, versatile and time-saving process is proposed for the screening of platinum-group metal doping of thermal barrier coatings applied on gas turbine engine blades to increase their oxidation and corrosion resistance. Information on spouting of the Ni alloy powders and on the CVD reactor is provided. Two deposition routes for the CVD of ruthenium starting form ruthenocene are described. The first implies a high-temperature reaction with hydrogen and yields crystalline Ru nanoparticles on the powder surface. The second is a low-temperature reaction with oxygen and yields ruthenium oxide which in turn is reduced in-situ to yield amorphous Ru. Both processes lead to uniform doping of the Ni alloy powder.

RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 11 OF 23 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:435088 CAPLUS
DN 135:46310

TI Processes for the preparation of organoruthenium compounds useful for thin film formation by CVD
IN Okamoto, Koji; Taniuchi, Junichi; Saito, Masayuki
PA Tanaka Kikinzoku Kogyo K.K., Japan
SO PCT Int. Appl., 33 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 1

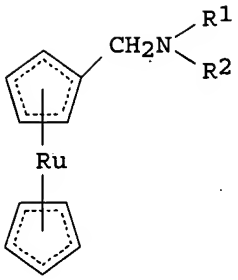
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	WO 2001042261	A1	20010614	WO 2000-JP8596	20001205	<--
	W: KR, US					
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR					
	JP 2001163894	A2	20010619	JP 1999-347010	19991207	<--
	JP 2001172294	A2	20010626	JP 1999-353966	19991214	<--
	JP 3620642	B2	20050216			
	US 6476247	B1	20021105	US 2001-869300	20010719	<--
PRAI	JP 1999-347010	A	19991207			
	JP 1999-353966	A	19991214			
	WO 2000-JP8596	W	20001205			

OS CASREACT 135:46310; MARPAT 135:46310
AB This document discloses processes for preparing two organoruthenium compds. useful for thin film formation by CVD, i. e. , bis(ethylcyclopentadienyl)ruthenium and (alkylcyclopentadienyl)cyclopentadienylruthenium; the first invention relates to a process for preparing bis(ethylcyclopentadienyl)ruthenium by hydrogenating bis(acetylcyclopentadienyl)ruthenium in the presence of a catalyst. The second invention relates to a process for preparing (alkylcyclopentadienyl)cyclopentadienylruthenium by acylating bis(cyclopentadienyl)ruthenium with a carboxylic acid anhydride by using phosphoric acid as the catalyst to obtain (acylcyclopentadienyl)cyclopentadienylruthenium and then reducing the obtained compound
RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 12 OF 23 CAPLUS COPYRIGHT 2006 ACS on STN
AN 2001:328875 CAPLUS
DN 134:359711
TI Ruthenocene derivative for chemical vapor deposition, manufacture of the compound, and formation of ruthenium (oxide) thin film by CVD
IN Kida, Masatsugu
PA Tanaka Noble Metal Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	JP 2001122887	A2	20010508	JP 1999-302360	19991025	<--
PRAI	JP 1999-302360		19991025			

OS MARPAT 134:359711
GI



I

AB The metalorg. compound is that represented as I (R1, R2 = alkyl, substituent involving ≥1 methylene which may form heterocycle with N). The compound is manufactured by reaction of ruthenocene, paraformaldehyde, and a secondary or tertiary amine in AcOH. The Ru (oxide) film is grown by CVD of I, which is suitable for electrode in elec. capacitor.

L6 ANSWER 13 OF 23 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1999:781216 CAPLUS
DN 132:17940
TI Manufacture of semiconductor devices with capacitors
IN Aoyama, Tomonori; Eguchi, Kazuhiro
PA Toshiba Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 12 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 11340435	A2	19991210	JP 1998-141222	19980522 <--
PRAI JP 1998-141222		19980522		

AB Ru (or its oxide) capacitor electrodes are formed by CVD, where Ru(C5H5)2 (H may be substituted by functional groups) are used as source gases.

L6 ANSWER 14 OF 23 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1999:673231 CAPLUS
DN 131:294431
TI Ferroelectric device and fabrication of hybrid electrodes for it
IN Roeder, Jeffrey R.; Baum, Thomas H.
PA Advanced Technology Materials, Inc., USA
SO PCT Int. Appl., 42 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 9953536	A1	19991021	WO 1999-US8327	19990415 <--
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 6284654	B1	20010904	US 1998-61380	19980416 <--
AU 9935646	A1	19991101	AU 1999-35646	19990415 <--
EP 1086489	A1	20010328	EP 1999-917554	19990415 <--
R: DE, IT, NL, IE				

JP 2002533910 T2 20021008 JP 2000-544002 19990415 <--
PRAI US 1998-61380 A 19980416
WO 1999-US8327 W 19990415
OS MARPAT 131:294431
AB A method of fabricating an electrode structure on a ferroelec. film involves CVD formation of a hybrid electrode constituted by a multilayer or alloyed electrode structure using either bubbler delivery or liquid delivery CVD.
RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 15 OF 23 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1999:465839 CAPLUS
DN 131:177820
TI Epitaxial and conductive RuO2 thin films grown on MgO and LaAlO3 by MOCVD
AU Lu, P.; He, S.; Li, F. X.; Jia, Q. X.
CS Department of Materials Science and Engineering, New Mexico Institute of Mining and Technology, Socorro, NM, 87801, USA
SO Materials Research Society Symposium Proceedings (1999), 541(Ferroelectric Thin Films VII), 147-152
CODEN: MRSPDH; ISSN: 0272-9172
PB Materials Research Society
DT Journal
LA English
AB Conductive RuO2 thin films were grown epitaxially on (100) MgO and (100) LaAlO3 substrates by metal-organic CVD (MOCVD) at different temps. The microstructural properties of the RuO2 films were studied using x-ray diffraction and SEM. Different growth and microstructure properties were observed for the films deposited on the two substrates. The films on MgO are epitaxial at deposition temps. ≥350°, and consist of two variants with an orientation relation given by (110) RuO2.dblvert.(100) MgO and [001] RuO2.dblvert.[011]MgO. The films on LaAlO3, however, are epitaxial only at deposition temps. of 600° and above, and contain four variants with an orientation relation given by (200)RuO2.dblvert.(100)LaAlO3 and [011]RuO2.dblvert.[011] LaAlO3. The observed microstructures of epitaxially grown films can be explained based on geometric considerations for the films and substrates.
RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 16 OF 23 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1999:348044 CAPLUS
DN 131:81352
TI Chemical vapor deposition of Ru and its application in (Ba,Sr)TiO3 capacitors for future dynamic random access memories
AU Aoyama, Tomonori; Kiyotoshi, Masahiro; Yamazaki, Soichi; Eguchi, Kazuhiro
CS ULSI Process Engineering Laboratory, Microelectronics Engineering Laboratory, Toshiba Corporation, Yokohama, 235-8522, Japan
SO Japanese Journal of Applied Physics, Part 1: Regular Papers, Short Notes & Review Papers (1999), 38(4B), 2194-2199
CODEN: JAPNDE; ISSN: 0021-4922
PB Japanese Journal of Applied Physics
DT Journal
LA English
AB Ru films were fabricated by CVD deposition using Ru(C5H5)2 and O2. The deposition of Ru film was controlled by the surface reaction kinetics as the rate limiting step with activation energy of 2.48 eV below 250° and by the mass transport process above 250°. Ru films had a polycryst. structure and showed low resistivity of about 12 μΩ-cm. Ru films deposited at 230° showed excellent step coverage. The authors applied Ru films prepared by CVD deposition to the bottom electrode of a Ba0.25Sr0.75TiO3 capacitor and obtained good elec. characteristics. RAM.
RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 17 OF 23 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1999:97065 CAPLUS
DN 130:274539
TI Epitaxial growth of RuO2 thin films by metal-organic chemical vapor deposition
AU Lu, P.; He, S.; Li, F. X.; Ji, Q. X.
CS Department of Materials Science and Engineering, New Mexico Institute of Mining and Technology, Socorro, NM, 87801, USA
SO Thin Solid Films (1999), 340(1,2), 140-144
CODEN: THSFAP; ISSN: 0040-6090
PB Elsevier Science S.A.
DT Journal
LA English
AB Conductive RuO2 thin films were epitaxially grown on LaAlO3 and MgO substrates by metal-organic CVD (MOCVD). The deposited RuO2 films were crack-free, and well adhered to the substrates. The RuO2 film is oriented on LaAlO3 substrates at deposition temperature of 600° and oriented on MgO substrates at deposition temperature of 350° and above. The epitaxial growth of RuO2 on MgO and LaAlO3 is demonstrated by strong in-plane orientation of thin films with respect to the major axes of the substrates. The RuO2 films on MgO contain 2 variants and form an orientation relation with MgO given by RuO2//MgO and RuO2[001]//MgO[011]. The RuO2 films on LaAlO3, however, contain 4 variants and form an orientation relation with LaAlO3 given by RuO2//LaAlO3 and RuO2[011]//LaAlO3[011]. Elec. measurements on the RuO2 thin films deposited at 600° show room-temperature resistivities of .apprx. 40 and .apprx. 50 μΩcm for the films deposited on the MgO and LaAlO3 substrates, resp.
RE.CNT 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 18 OF 23 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1998:398705 CAPLUS
DN 129:116727
TI Ruthenium oxide film formation and manufacture of semiconductor device
IN Nakabayashi, Masaaki
PA Fujitsu Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 10163131	A2	19980619	JP 1996-317465	19961128 <--
JP 3676004	B2	20050727		
PRAI JP 1996-317465		19961128		

AB The method involves feeding a Ru-containing organic metal compound and an oxidizing gas in a film formation region at O partial pressure ≤6 Torr to form the film on a substrate. The manufacture method involves forming a 1st the metal film on a semiconductor substrate optionally via an insulating film and successively coating the film with a dielec. film and a 2nd metal film to form a capacitor. The manufacture method gives the device showing heat resistance and controlled surface morphol.

L6 ANSWER 19 OF 23 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1997:426778 CAPLUS
DN 127:151949
TI Effect of deposition temperature and oxygen on the growth of RuO2 thin films deposited by metalorganic chemical vapor deposition
AU Shin, Woong-Chul; Yoon, Soon-Gil

CS Electro-Ceramics Res. Lab., Dept. Materials Eng., Coll. Eng., Chungnam National Univ., Taejon, 305-764, S. Korea
SO Yoop Hakhoechi (1997), 34(3), 241-248
CODEN: YPHJAP; ISSN: 0372-7807
PB Korean Ceramic Society
DT Journal
LA Korean
AB RuO2 thin films were deposited on SiO2(1000 Å)/Si and MgO(100) single crystal substrates at low temps. by hot-wall metalorg. chemical vapor deposition (MOCVD), and effects of deposition parameters on the properties of the thin films were investigated. RuO2 single phase was obtained at lower deposition temperature of 250°C. RuO2 thin films deposited onto SiO2(1000 Å)/Si substrates showed a random orientation, and RuO2 films onto MgO(100) single crystals showed the (hk0) orientation. The crystallinity and resistivity of RuO2 thin films increased and decreased with increasing deposition temperature, resp. The resistivity of RuO2 thin films decreased with decreasing the oxygen flow rate. The resistivity of the 2600 Å-thick RuO2 thin films deposited with O2 flow rate of 50 sccm at 350°C was 52.7. μΩ-cm, and they could be applicable to bottom electrodes of high dielec. materials.

L6 ANSWER 20 OF 23 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1996:753339 CAPLUS
DN 126:137013
TI Characterization of RuO2 thin films deposited on Si by metal-organic chemical vapor deposition
AU Liao, P. C.; Mar, S. Y.; Ho, W. S.; Huang, Y. S.; Tiong, K. K.
CS Department of Electronic Engineering, National Taiwan Institute of Technology, Taipei, 106, Taiwan
SO Thin Solid Films (1996), 287(1-2), 74-79
CODEN: THSFAP; ISSN: 0040-6090
PB Elsevier
DT Journal
LA English
AB The authors report characterization of RuO2 thin films, deposited on Si substrates by metal-organic CVD (MOCVD), by SEM, x-ray diffraction, elec. conductivity, spectrophotometry, ellipsometry and Raman scattering measurements. As-deposited RuO2 films are specular, crack free, and well adherent on the substrate. The Auger electron spectroscopy depth profile shows good compositional uniformity across the thickness of the films. As confirmed by x-ray studies, the films crystallize with the correct rutile structure. The results of the elec. and optical studies of the MOCVD RuO2 films show a metallic character of these films. The results of Raman study indicate that a nearly strain free and high quality RuO2 thin film could be deposited on a Si substrate by MOCVD.

L6 ANSWER 21 OF 23 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1995:523228 CAPLUS
DN 123:129367
TI Lead zirconate titanate thin films on ruthenium dioxide; in situ synthesis using organometallic chemical vapor deposition
AU De Keijser, M.; Dormans, G. J. M.; Van Veldhoven, P. J.
CS Philips Research Laboratories, Eindhoven, 5656 AA, Neth.
SO Integrated Ferroelectrics (1994), 5(3), 221-7
CODEN: IFEREU; ISSN: 1058-4587
DT Journal
LA English
AB In this paper the organometallic chemical vapor deposition (OMCVD) of RuO2 using the precursor ruthenocene, Ru(C5H5)2, will be discussed. Stoichiometric RuO2 thin films with a specific resistivity of about 50 μΩcm were obtained both on strontium titanate and platinized silicon wafers at temps. between 300-700°C. PbZr0.8Ti0.2O3 thin films were in situ deposited onto these RuO2 electrodes. The ferroelec. behavior of the films obtained on the RuO2 electrodes is compared with

those obtained on platinum electrodes. Attempts to deposit in-situ a RuO2 top electrode on the PbZr0.8Ti0.2O3 were unsuccessful.

L6 ANSWER 22 OF 23 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1995:521938 CAPLUS
DN 123:70751
TI Chemical vapor deposition of ruthenium and osmium films from mono- and bis-(cyclopentadienyl) complexes as precursors
AU Smart, Christopher J.; Gulhati, Akshaya; Reynolds, Scott K.
CS Vassar Coll., Poughkeepsie, NY, USA
SO Materials Research Society Symposium Proceedings (1995), 363(Chemical Vapor Deposition of Refractory Metals and Ceramics III), 207-12
CODEN: MRSPDH; ISSN: 0272-9172
PB Materials Research Society
DT Journal
LA English
AB The authors have studied cyclopentadienyl (Cp) complexes of Ru and Os as precursors for low temperature CVD of pure Ru and Os films. Films were grown on a variety of substrates in a warm-walled CVD reactor, equipped with a resistively heated wafer chuck, mass-flow controllers for carrier gas regulation, and a mech.-back oil-vapor diffusion pump. Typical depositions were done under .apprx.1 torr total pressure. Use of air or O as a carrier gas and Cp2M (M = Ru or OS) as precursors gave high purity, conformal films of Ru and Os at temps. ≥275° and 350°, resp. Under these conditions, the only observable byproducts were CO2 and H2O, indicating that surface-catalyzed, complete oxidation of the ligands was involved in the decomposition process. Growth rates, film purities, resistivities and conformality were measured.

L6 ANSWER 23 OF 23 CAPLUS COPYRIGHT 2006 ACS on STN
AN 1995:449385 CAPLUS
DN 122:303277
TI Modeling of the formation of RuO2 thin film from Ru(C5H5)2 by metal-organic chemical vapor decomposition
AU Mar, S. Y.; Huang, Y. S.; Tiong, K. K.
CS Department of Electronic Engineering, National Taiwan Institute of Technology, Taipei, 106, Taiwan
SO Thin Solid Films (1995), 258(1-2), 104-9
CODEN: THSFAP; ISSN: 0040-6090
PB Elsevier
DT Journal
LA English
AB A modeling technique based on bond graph methods was used to analyze the mechanism of metal-organic CVD processes of RuO2 by Ru(C5H5)2. Theor. models are considered and compared with exptl. data. The most suitable model, which incorporates both the homogeneous gas-phase reactions and the heterogeneous surface processes, is constructed. The proposed model agreed well with the exptl. data. The model indicates that besides a single-surface reaction there exists a gas-phase reaction which is the rate-controlling step. The surface deposition rate constant as well as the forward and backward reaction rate consts. for the gas-phase reversible reaction of Ru(C5H5)2 are also determined

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=>  s l5 and pentafluoroethyl
          1000 PENTAFLUOROETHYL
L7           0 L5 AND PENTAFLUOROETHYL

=> s l5 and trialkylsylil
             0 TRIALKYLSYLIL
L8           0 L5 AND TRIALKYLSYLIL
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=> s l5 and trialkylsilyl
          2302 TRIALKYLSILYL
L9           0 L5 AND TRIALKYLSILYL
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